Journal of Poverty, Investment and Development - An Open Access International Journal
Vol.1 2013

ICT and Human Capital Developers in Nigeria: A Chi-Square Analysis Approach of the Ekiti State's Experience

Oyemakinde Festus Boye (Ph.D. IN VIEW)
Department of Economics, Osun State College of Education, Ilesa, Nigeria
oyemakindefestus@gmail.com

Abstract
ICT can improve access to education and promote evenhandedness by providing sound and enriching educational opportunities to a greater number of people of all ages. This study was undertaken to explore teachers' skills, knowledge and applications of ICT in class room teaching in the Ekiti State South Western part of Nigeria. A case study research design was adopted for this study where interviews, observations and open-ended questionnaires including document analysis were used to collect qualitative data. The respondents interviewed in each school were mainly Teachers in Sciences, Humanities, Technologies and Business Classes. The findings indicate that teachers are still finding it difficult to shift from manual-teachings to technological leanings in Ekiti State. From the findings of the study, it is recommended that courses such as computer supported learning and ICT's designing instructional materials should be introduced in initial teacher training programmes to improve teachers' level of knowledge and appreciation of ICT.

1. Introduction

Information Communication & Technology (ICT) refers to a powerful collection of elements which include computer hardware, software, telecommunication networks, workstations, robotics and smart chips (Yekini and Lawal 2010). ICT tools can help learners to picture scientific ideas or to develop conceptual idea (Jonassen, 2002). Since we live in information society, everyone is expected to be ICT literate which entails; **Awareness***:* As you study ICT (computers), you will become aware of their importance, versatility, pervasiveness, and their potential for good and ill in our society ***Knowledge****:* You will learn what computers are and how they work. This requires learning some technical jargons that will help you deal with the computer and with people that work with computers. And ***Interaction****:* This implies learning to use a computer to perform some basic tasks or applications (Yekini and Lawal, 2011). This paper examines how ICTs can be used to improve the quality assurance in Nigerian educational system using Ekiti State as a case study. It presents teachers disposition towards ICTs in teaching subjects in schools towards better performances in examination (Yekini, Adigun and Rufai, 2012).

This study focuses on the need to build capacity in ICT integration among the teachers in Nigeria. With respect to education, while policy makers set the framework, teachers are the one who implement education policy. In ICT education programmes, teachers are the key to whether technology is used appropriately and effectively. It was a paper driven by the need to broaden the scope of on-going efforts to establish a sound ICT footing for the education sector by adding teacher educators to the beneficiaries.

By adopting a chi-square approach, the aim was to see how far the Nigerian teachers are embracing or cashing in on the advantages of the ICT in passing communication across to their various students. After all, the chi-square analysis is supposed to answer questions whether resources within a project are used efficiently for the society as a whole. The objective function in a chi-square analysis is citizenry welfare. This means that the chi-square analysis should estimate all direct and indirect effects on teachers' welfare in fiscal values. Generally, the main benefit of a project is the potential increase in production values (GDP); in the present analysis, the main benefit is the value of production, that is, the work done by the teachers and how they employ the advantages of ICT in doing them. Costs are defined as the alternative values (costs), that is, the value of the resources in an alternative case; the case where the teachers are not provided with or failed to embrace ICT and the teachers are assumed to continue with their former method of teaching.

The empirical analysis in this paper is based on research questionnaires distributed to teachers in some selected schools across the Ekiti State in the South Western part of Nigeria. The paper is therefore organized as follows. Following the introductory section, section 2 examines the objective of the study. Section 3 reviews the literature. The methodology of the study is discussed in Section 3. A Chi-Square analysis of the demand for ICT and the effective growth of literacy or learning in Ekiti State are considered in Section 4. Finally, Section 5 presents the summary and conclusions of the paper.

2. OBJECTIVE OF THE STUDY

A mere perception of the data on education and ICT suggests that, ICT should contribute meaningfully to impartation of knowledge. But in Ekiti State in particular and in Nigeria in general, it appears that we have this causality relationship backwards. For example, if ICT's are seen as luxury good, it may be that governments are dishing out Laptop computers to achieve mere and cheap political goals, rather than for their usefulness in

aiding the effective teaching. Ekiti State seems to be an example of such state in Nigeria. It is worrisome to realize that despite the massive laptop computers that were given out to teachers for the purpose of teaching students in Ekiti State, the productivity of this schemes appears very low. Up till now, majority of the teachers in Ekiti State are finding it difficult to teach their secondary school students with the computers given to them simply because government fails to organise ICT seminars or computer education for these secondary school teachers before given computers out to them.

The poor delivery of the technical Know-how in Nigeria is all the more worrisome. There is thus the research need to investigate the causality relationship between demand for ICT and the effective teachings in Nigerian Secondary schools using the Ekiti State's experience as a case study. There is also the research need to ascertain the extent to which the teachers are making use of the available ICT facilities.

What is the role of ICT in teaching process? Are increases in ICT correlated with the learning growth? What are the numbers of the Ekiti State teachers that are computer literate to the point of preparing their lesson notes the laptop computers that were given them? What mechanisms does Ekiti State government put in place to ensure that all its secondary school teachers became computer literate before using the state's money to procure a large numbers of laptops to the teachers? These queries motivate the quest for empirical verification and quantification of the issues raised with respect to role of government and the ICT in the growth of education in Nigeria. It is therefore the objective of this paper to investigate the causality relationship and correlation between the demand for ICT and effective teaching in Ekiti State using Chi-Square (X^2) approach.

3. LITERATURE REVIEW

The rapid growth in Information Communication Technology (ICT) has attracted the attention of numerous eminent scholars of education. To begin with, Andoh (2012) argues that ICT is becoming increasingly important in our daily lives as well as in educational system. Therefore, there is a growing demand on educational institutions to use ICT to teach the necessary skills that that students need for the twenty first century.

In his studies of the Second-Cycle Schools in Ghana, Andoh submits that despite the fact that today's educational institutions try to restructure their educational curricular and classroom facilities in order to bridge the existing technological gap in teaching and learning processes, this restructuring requires effective adoption of technologies into existing learning environments in order to provide learners with requires knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity of the teachers.

Hew&Brush, (2007) argues that to successfully initiate and implement educational technology in the school programme depends strongly on the teachers' support, attitudes and dispositions towards ICT. It is believed that if teachers perceived technology programmes as neither fulfilling their own needs nor their students' needs, it is likely that they will not integrate the technology into teaching and learning.

In the case of Rozell and Gardner (2009), teachers' experience relates positively to their computer attitudes. The more experience teachers have with computers, the more they are likely to show positive attitude towards computers. In the submission of van Braak, Tondeur, & Valcke, (2004), positive computer attitudes are expected to foster computer integration in the classroom.

Furthermore, Teo (2008) in his conducted on teachers' disposition towards computer in Singapore found that teachers were more positive about their attitude towards computers and intention to use computer than their perceptions of the usefulness of the computer and their control of the computer.

4.0. METHODOLOGY

4.1. Participants

The study was conducted in the public secondary schools across Ekiti State. Three hundred and six teachers were selected from thirty schools participated in the study. The sample was made up of 209 males and 97 females. The ages of the participants ranged between 30 and 60. The participating teachers came from different departments in the various schools.

4.2. Data Collection Methods

A simple random sampling technique was used to select the teachers who participated in the study. Questionnaires were delivered personally to Vice Principals of each school for distribution to the participants. This method was chosen to avoid low response rate. Also, the involvement of the teachers in the study was strictly voluntary (some refused to collect the questionnaires) and those who collected were assured of their confidentiality of any information given. The reliability and validity of the questionnaires was improved upon through the verification of the experts in the field. After 14 days allowances were given to the teachers to complete the questionnaires, a total number of 287 questionnaires were collected back from the participants indicating a 93.79% return rate. Out of 287 returned questionnaires, 16 were not used for data analysis since they were incomplete. Thus 271 questionnaires were used for data analysis indicating an 88.56% valid response rate.

4.3. Instrument

A survey was designed to collect data from these secondary school teachers across Ekiti State. The first section of the questionnaire focused on the gender, age, teaching experience, computer experience, and frequency of

computer use. In the second section, the teachers were asked to rate their knowledge and skills in the use of ICT. Lastly, teachers were asked to indicate the factors which affected their use of ICT in teaching. A reliability test was carried out to determine the internal consistency of items in the questionnaires by using chi-square reliability test.

Chi-square (X^2) can be calculated by using the formular $\frac{\sum (O- E)^2}{E}$

Where 'O' represents the observed frequency and 'E' represents the expected frequency.

4.4.Data Analyses

Data were analysed using chi-square (x^2) analysis was used in as much as this study is a research analysis oriented. The chi-square (x^2) was used to test the three null hypotheses and the degree of freedom by which the test was computed was 12

Research Question 1: ICT is embraced for the teaching of students by all the Teachers across the Ekiti State

Respondents were asked to indicate on a five-point scale ranging from strongly disagree (1) to strongly agree (5) their views on whether they embraced the usage of computer for the teachings of their students. As shown in Table 1, the majority of the respondents agreed that ICT offers a very good opportunity for the teachers to teach the students effectively. The majority of the respondents also agreed or strongly agreed that ICT can enhance students' performance provided such ICT was made available under an enabling environment.

Table 4.1

Department	SD	D	N	A	SA	TOTAL
SCIENCES	**4**	**3**	**4**	**15**	**43**	**69**
TECHNOLOGY	**5**	**3**	**2**	**6**	**51**	**67**
HUMANITIES	**4**	**2**	**3**	**32**	**32**	**73**
BUSINESS	**5**	**3**	**6**	**21**	**27**	**62**
TOTAL	**18**	**11**	**15**	**74**	**153**	**271**

Scale: SD=Strongly Disagree D=Disagree N=Neutral A=Agree SA=Strongly Agree

Test 1

HO—There is no significance difference between the usage of ICT and teachers' disposition towards its usage.

The calculated Chi-Square (X^2) value for test 1 is 30.8089. The critical Chi-square value is 21.026 for the degree of freedom (df) of 12 and probability (p) of 0.05.

Decision Inference for Test 1: Since the calculated Chi-square value (30.8089) is greater than the critical chi-square value (20.026), hence we reject the null hypothesis.

Research Question 2: You can prepare a lesson note very well on the Microsoft word application

Respondents were asked to indicate on a five-point scale ranging from strongly disagree (1) to strongly agree (5) their views on whether they have the ability to make use of Microsoft word in preparing a lesson note. As shown in Table 2, the majority of the respondents strongly disagreed or disagreed that they can make use of Microsoft word application.

Department	SD	D	N	A	SA	TOTAL
SCIENCES	42	12	5	6	4	69
TECHNOLOGY	34	12	8	7	6	67
HUMANITIES	35	18	12	5	3	73
BUSINESS	32	13	4	8	5	62
TOTAL	143	55	29	26	18	271

Test 2

HO—There is no significant relationship between the teachers knowledge of ICT and the usage of ICT.

The calculated Chi-Square value for test 2 is 7.7672. The critical Chi-square value is 21.026 for the degree of freedom (df) of 12 and probability (p) of 0.05.

Decision Inference for Test 2: Since the calculated Chi-square value (7.7672) is lesser than the critical chi-square value (20.026), hence we failed to reject the null hypothesis.

Research Question 3: Your Monthly Salary is Commensurate with the usage of ICT

Respondents were asked to indicate on a five-point scale ranging from strongly disagree (1) to strongly agree (5) their views on whether their monthly salary encourage the usage of ICT. As shown in Table 3, the majority of the respondents strongly disagreed or disagreed that their monthly salary encourages the usage of ICT.

DEPARTMENT	SD	D	N	A	SA	TOTAL
SCIENCE	**35**	**24**	**2**	**3**	**5**	**69**
TECHNOLOGY	**15**	**19**	**7**	**2**	**4**	**47**
HUMANITIES	**37**	**25**	**3**	**3**	**5**	**73**
BUSINESS	**37**	**28**	**4**	**6**	**7**	**82**
TOTAL	**124**	**96**	**16**	**14**	**21**	**271**

Test 3

HO—There is no significant relationship between the teachers monthly salary and the usage of ICT.

The calculated Chi-Square value for test 3 is 11.6283. The critical Chi-square value is 21.026 for the degree of freedom (df) of 12 and probability (p) of 0.05.

Decision Inference for Test 3: Since the calculated Chi-square value (11.6283) is lesser than the critical chi-square value (20.026), hence we failed to reject the null hypothesis.

5. Conclusion and Recommendation

Education is primarily responsible today for preparing a society for the future and moderating the adverse impact of social and economic change. For being a part of this challenging economy in this part of the developing world as well as ensuring that able minds are prepared for the future development of the country, Nigerian teachers, as human developers, need to equip themselves with deeper understanding of their various areas of discipline. But this knowledge is by itself not sufficient. They also need to be able to use technological facilities, handle information, communicate proficiently, reflect decisively, work well in group, and turn out new logical and creative mechanism that add values to their students/pupils lives. ICT are means of meeting these challenges.

However, our findings revealed that while the initiative of the Ekiti State Government in giving out the computers to the teachers is commendable, the proper enabling environment for the usage of Computers in Secondary Schools is not created by the same government. As our findings revealed that majority of the teachers are not competent even in the usage of word processing, the result which disagree with Jegede et al (2007) and Andoh (2007) who found teachers to be more proficient in word processing than the other computer applications. The implication of this is that the Teachers in Ekiti State have not gotten even the rudimentary experience of ICT skills and evidence from scholars such as Rosenfield &Martinez-pons (2005) revealed that teachers' mastery in ICT skills is acute to successful integration of ICT into teaching.

The study also demonstrated that general introduction of ICT into teaching is nil in Ekiti State. The study also agrees with Andoh (2012) who argues that ICT has not transformed the teaching and learning enterprise. It is a clear evidence that the introduction of ICT in teaching and learning has not contribute to the growth of educational delivery in Ekiti State Secondary Schools implying that teachers have found it difficult to shift from their customary manual mode of teaching.

Finally, the study revealed that majority of the teachers are satisfied with their monthly salary and as a result of this, moral is at its very lowest ebb in virtually all the Secondary schools in Ekiti State. As a result of this, they are not ready to spend money in acquiring the knowledge of ICT usage.

From the results of the study, it is recommended that Ekiti State teachers be given sufficient training in order to acquire the requisite knowledge and skills of how to make use of computer technology in the classroom.

We also call on the Ekiti State government to place the welfare of its teachers as a priority. A situation whereby teachers are being given a paltry sum as monthly salary while the government officials continue to live ostentatious lifestyles, human developers are not going to be encouraged to carry out their duties they ought to. This is necessary so that the Computer projects currently embarked upon by the government of Ekiti State will not end up as another Nigeria's sad story of white-elephant project.

References

Andoh CB (2012): "*An Exploration of Teachers' Skills, Perceptions and Practices of ICT In Teaching and Learning in the Ghanaian Second-Cycle Schools*" A publication of Contemporary Educational Technology Vol. 3 (1), pp. 36-49

Braak V., Tondeur J., & Valcke, M. (2004): *"Explaining different types of Computer use among Primary School Teachers"* A publication of European Journal of Psychology of Education, 19, pp. 407-424

Hew KF., & Brush, T (2007): "*Integrating Technology into K-12 Teaching and learning: current knowledge gaps and recommendations for future research*" A publication of Educational Technology Research & Development. Vol 55. pp. 223-253

Jegede, P.O., Odusola O.D& Ilori M.O. (2007): "*Relationships Between ICT Competence and Attitude Among Nigerian Tertiary Institution Lecturers*" A publication of Educational Research and Review. Vol.2 (7) pp. 172-175

Jonassen, D. (2000). "*Computers as mind tools for schools: engaging critical thinking"*. 2ed. New Jersey: Prentice Hall.

Rozell E.J. & Gardner W.L (1999): "*Computer-related Success and Failure: A longitudinal field study of the factors influencing computer-related performance*" A publication of Computer in Human Behaviour Vol. 15 (1) pp.1-10

Rosenfield B & Martinez-pons M. (2005): "*Promoting Classroom Technology Use*" The Quarterly Review of Distance Education. Vol. 6 (2) pp. 145-153

Teo T. (2008): "*Pre-service Teachers' Attitudes Towards Computer Use: A Singapore Survey*" Publication of

Australian Journal of Educational Technology Vol 6 pp. 413-424
Yekini, N. A. and Lawal O.N. (2010) "*Introduction to ICT and Data Processing*". Asfem Publication, Nigeria.
Yekini NA., Adigun JO& Rufai M.M (2012): "*ICT 'Tools' To Improve Quality Assurance in Africa Educational System (Nigeria as Case Study)*" JCS&T Vol 12 (1) pp. 9-15